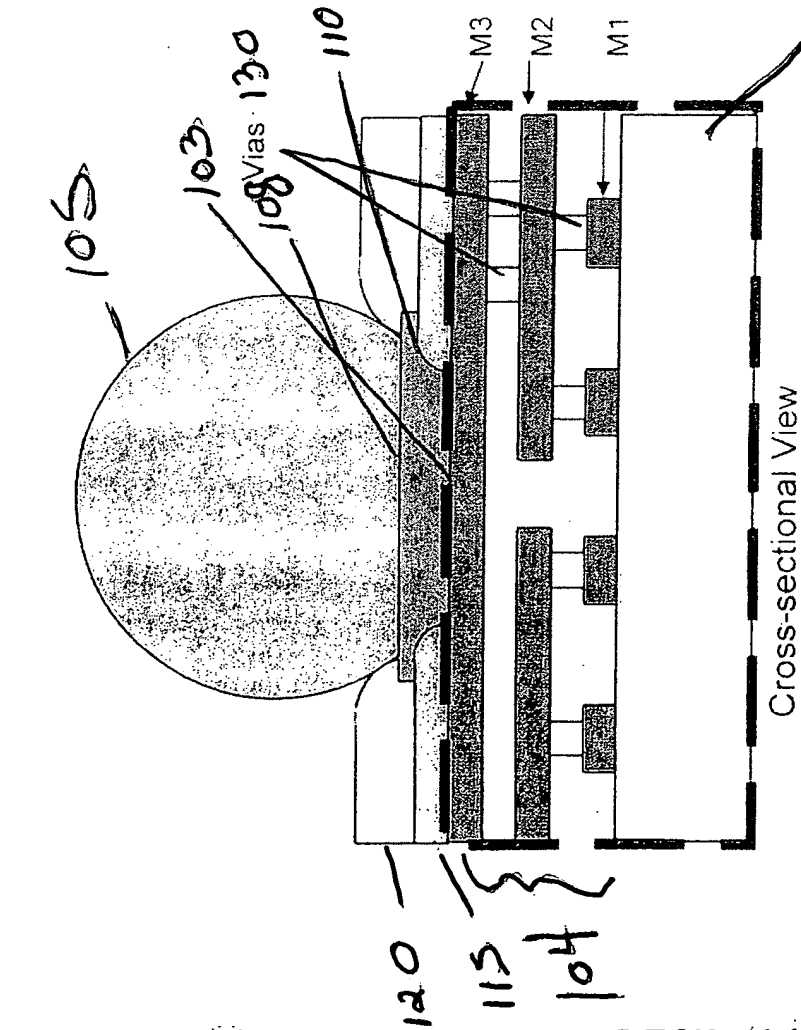


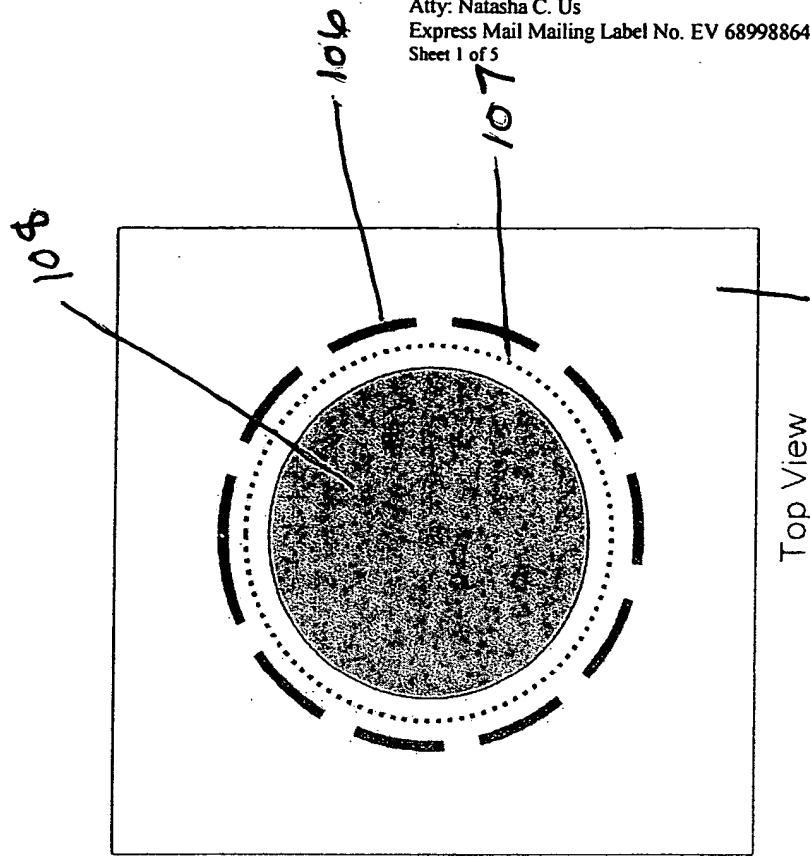
FIG 1

100



Cross-sectional View

Fig. 1a



Top View

Fig. 1b

Common UBM (under bump metallurgy) Systems

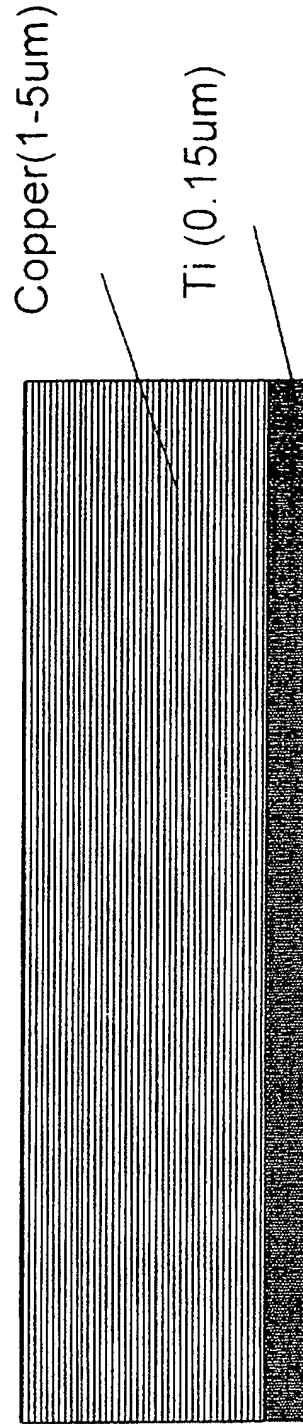
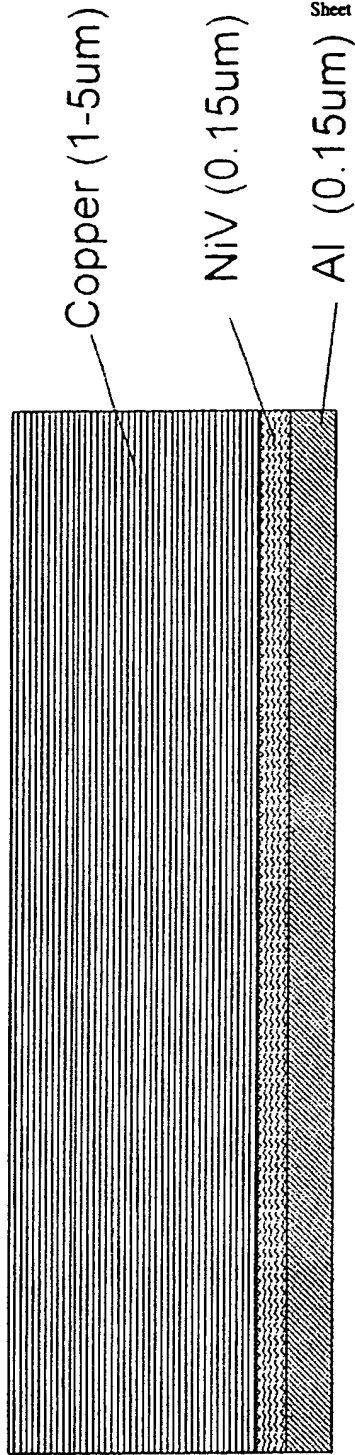


FIG 1C

Resistance of Bumped Chip
Atty Docket No.: GWS-005
Atty: Natasha C. Us
Express Mail Mailing Label No. EV 689988641 US
Sheet 3 of 5

Top View

The diagram shows a top-down view of a square chip. In the center is a circular bump with a textured, granular surface. Surrounding this bump is a dashed circle. The entire chip is enclosed within a square border defined by a dotted line. Handwritten labels with leader lines identify various features: '108' points to the top-left corner of the dotted border; '106' points to the circular bump; '107' points to the top-right corner of the dotted border; and '105' points to the dashed circle.



FIG 3. UBM Layer Covering Thinner Top Metal Layer

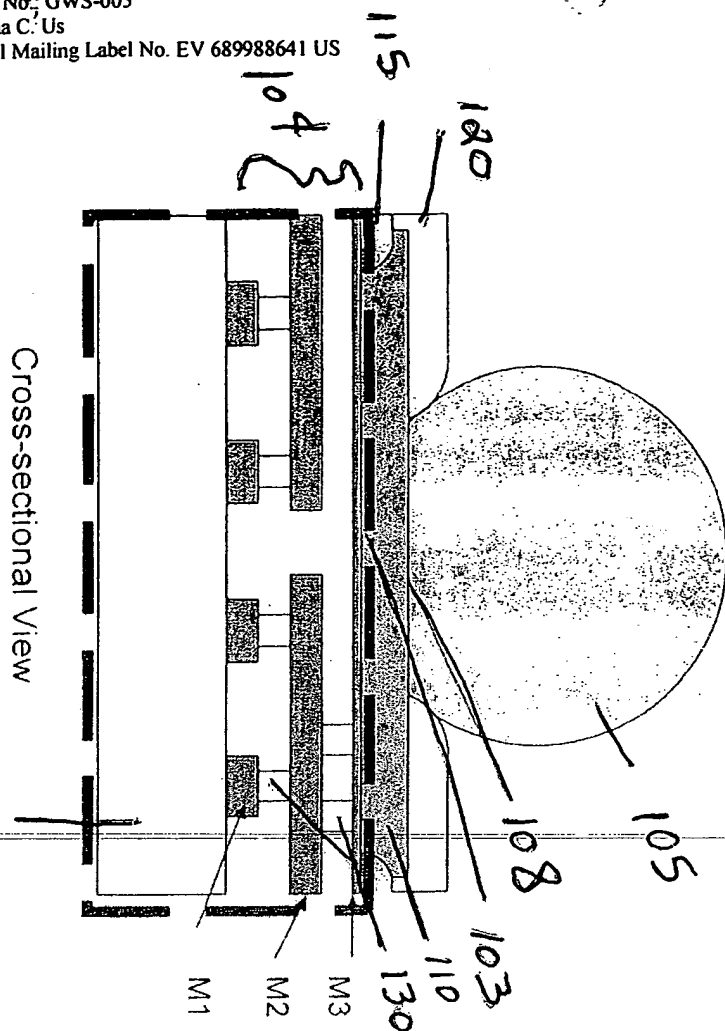


Fig. 3a

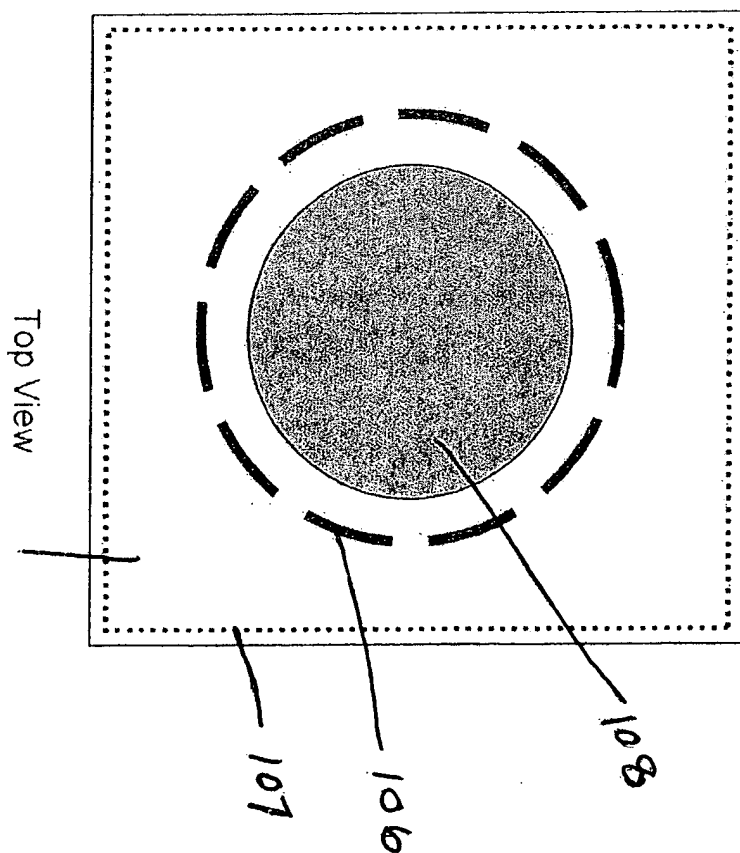


Fig. 3b

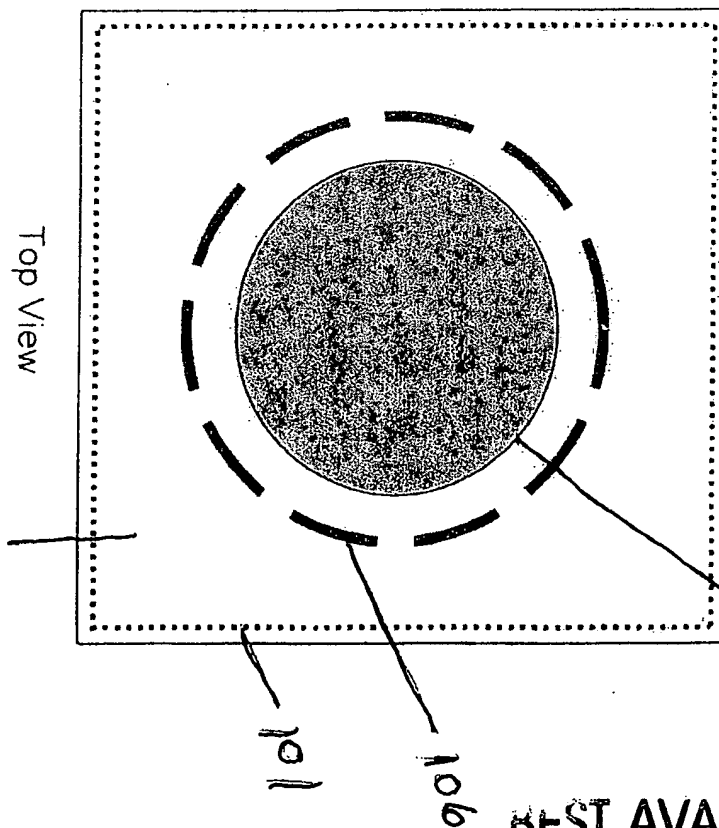
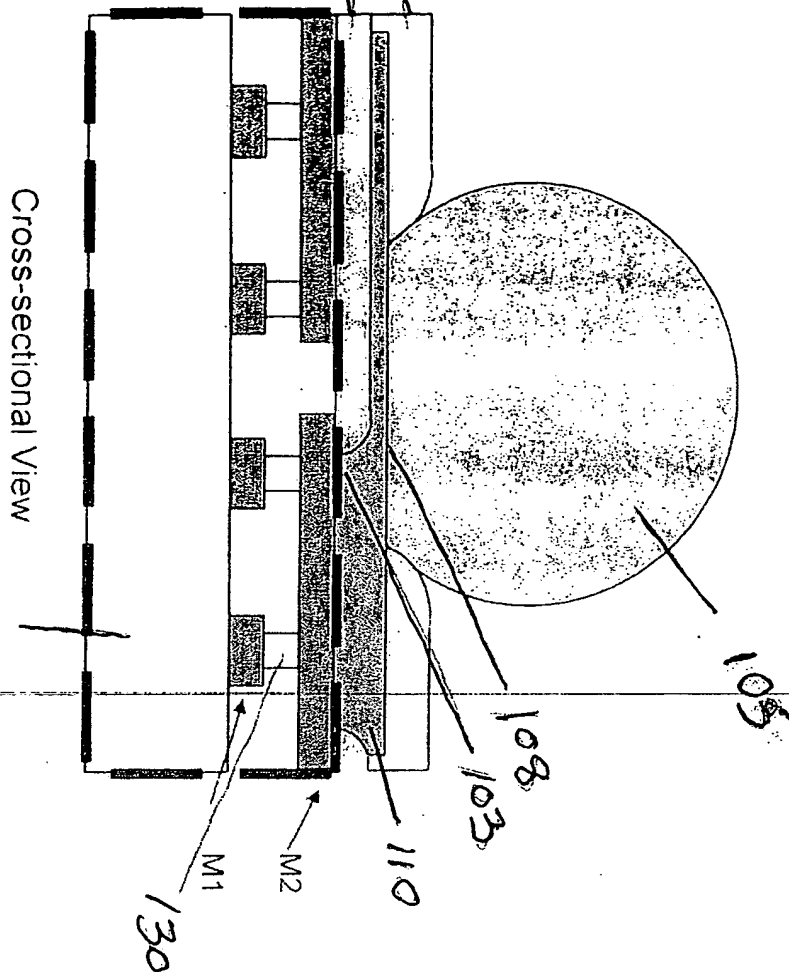


FIG 4. UBM Layer Replacing Top Metal Layer

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